Michigan Energy Policy -
Path to a Cleaner, More Affordable Future

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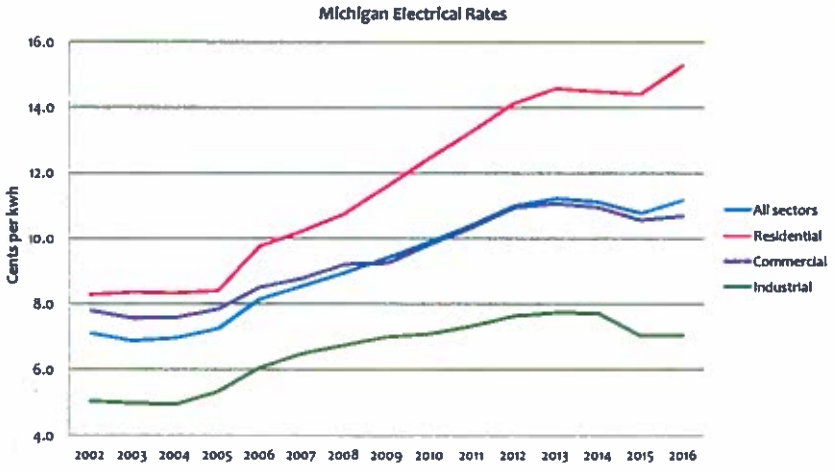
Presentation Outline

* Introduction to Michigan Environmental Council
* Rates - background
* How can we lower rates in Michigan?
  * Capacity / Reliability
  * Lowest Cost Resources
* Vision for the Future

Rates

* Total Cost of Energy
  * Capital and staffing costs
  * Return on investment on capital
  * Power supply costs – fuel, purchased power, etc.
* Divided between rate classes
  * [T]he commission shall ensure the establishment of electric rates equal to the cost of providing service to each customer class. MCLA 460.11(1)

Electricity Rate Increases



Michigan Energy Goals

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How do we reduce costs?

* Reduce our need for power at peak times
* Reduce our need for power overall
* Improve efficiency of the delivery of power
* Maximize our use of low cost, low-risk energy sources to meet demand

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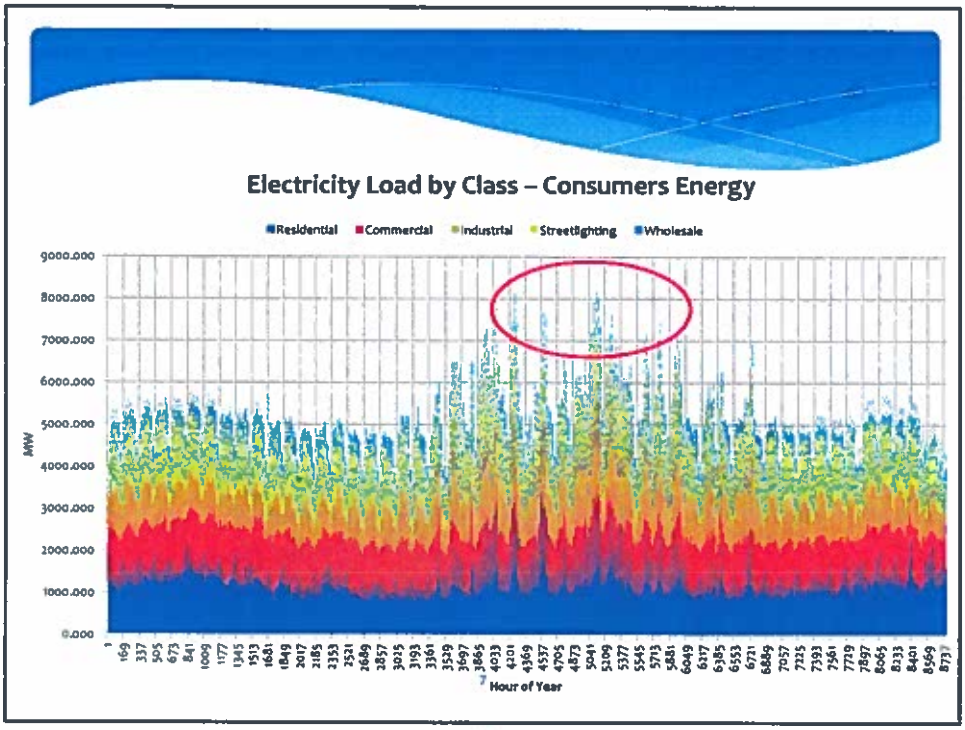
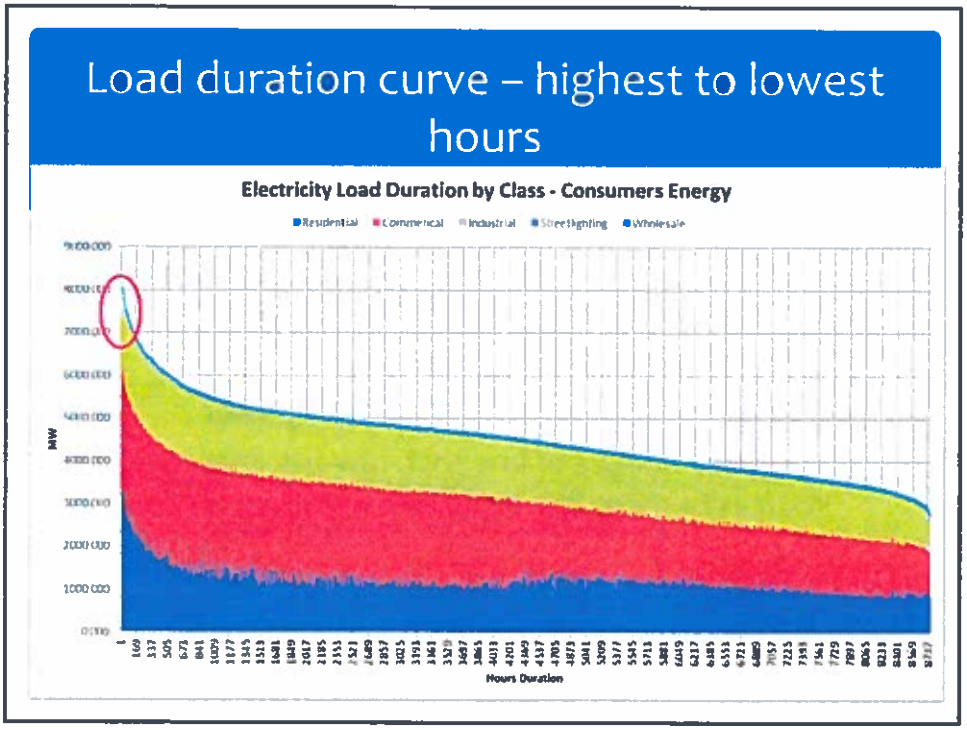


Load duration curve – highest to lowest hours



Reduced costs through rate design

- Deployment of advanced meters has made time-of-day pricing possible – promise by utilities that they could be used to reduce peak demand costs by over $900 million
- Pilot programs show time-of-day pricing has the ability to shave peak residential demand by 630 MW for Consumers Energy and 521 MW for DTE
- Expanded to all customers classes, could reduce utility costs by over $200 million a year

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Performance Goal

1. **Capacity: Reduce peak demand by 20% within 5 years**

Distribution Costs

* Line losses – increase as the amount of power being distributed grows – vary among energy providers, but are in the 7-8% range, which is above national averages
* Major providers requested the ability to invest around $1 billion in the last rates cases in upgrading the grid
* Filings lack data on how it would improve performance – MPSC ordered a 5-year plan from both major utilities due this summer, and requires they meet with staff quarterly

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Performance Goals

1. Capacity: Reduce peak demand by 20% within 5 years
2. Distribution: Reduce line losses by 15% within 5 years

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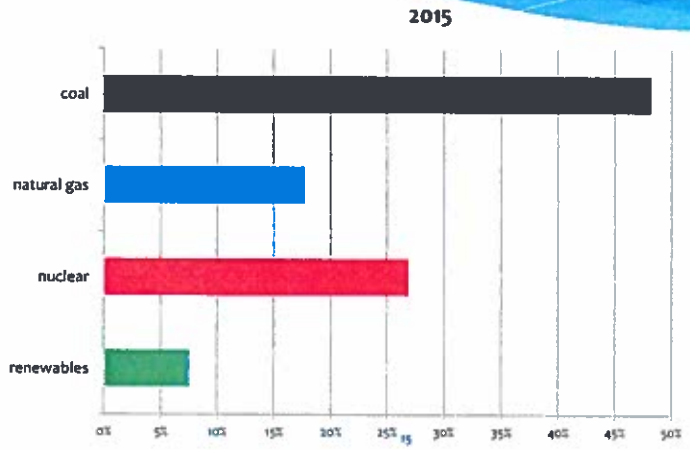
Energy waste reduction

* Currently achieving around 1.3% reduction in demand for a cost of $13.55/MWh (less than one half the variable costs of generating power)
* Highest performing states exceeding 2% annually
* Helps create jobs within the state, using goods produced in Michigan, and tends to improve productivity

Performance Goals

1. Capacity: Reduce peak demand by 20% within 5 years
2. Distribution: Reduce line losses by 15% within 5 years
3. Energy waste reduction: Ramp up to reducing electricity demand by 2% per year and natural gas use by 1% per year within 5 years

Current energy portfolio



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Coal

* Michigan fleet is very old
* Primary source of air pollution coming out of smokestacks
* Mercury emissions are the primary reason we have to limit our consumption of fish caught in Michigan
* Tied to a growing number of diseases, including diabetes and dementia
* Direct state subsidies in the form of exemptions to sales and use taxes – over $250 million, property taxes exemptions of over $150 million/year, and federal tax subsidies for emission reduction of over $50 million/year

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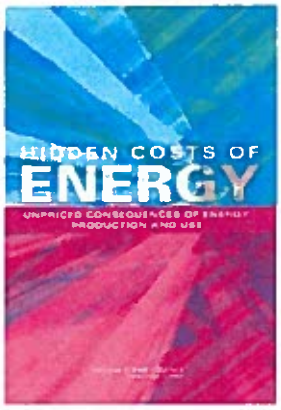
Addressing hidden costs

* National Academy of Science report issued in 2009
* In 2005, the annual external damages from burning coal at 406 coal-fired power plants, were about $62 billion
* Equates to 3.2 cents for every kilowatt-hour (kwh) of energy produced



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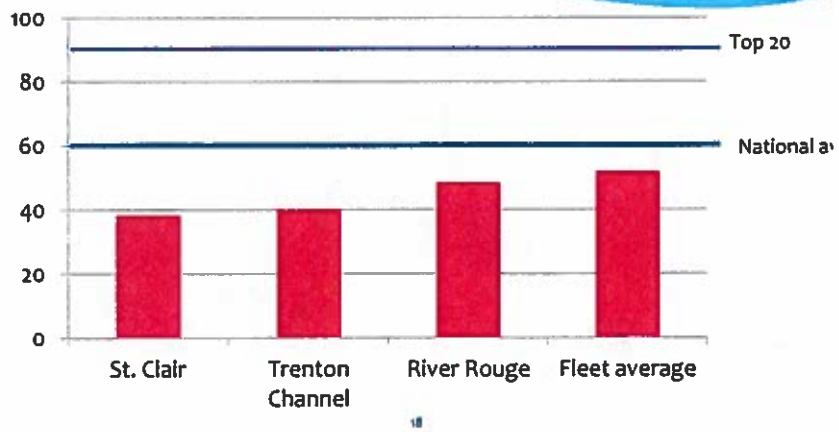
DTE coal plant capacity factors



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Natural Gas

* Combustion turbines – cheaper to build, higher fuel costs, very flexible
* Combined cycle plants – lower costs, somewhat less flexible
* History of significant fuel price fluctuations
* Competes with home heating fuel
* Cleaner, reduces carbon emissions by 50% over coal

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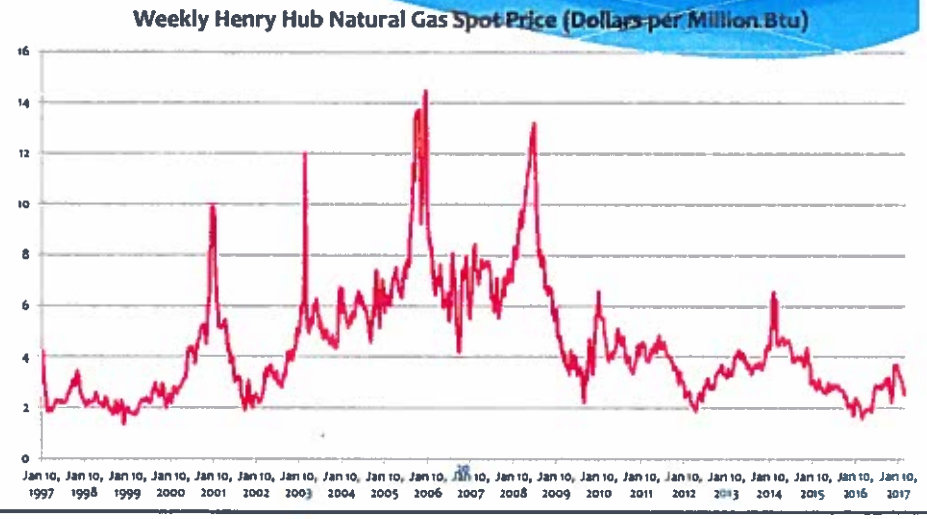
Natural gas prices



Nuclear

- Fermi 2 licensed through 2045, Cook Nuclear Plant through 2034-37
- High construction costs, relatively low operation costs, run continuously when in operation
- Have received significant federal subsidies throughout their lives
- Low-carbon method of generation
- High-level radioactive waste management costs for next 10,000 years

Wind Energy

- Long-term contracts at less than $45/MWh
- Intermittent, but predictable
- Federal tax subsidies – being phased out, currently less than $8/MWh
- Michigan-made components
- Income can help stabilize agriculture operations
- Utilities refusing to buy even when it is shown to save ratepayers money

Solar Power

* Recent utility scale bids at ~$65/MWh
* Long-term stable prices
* Delivers power during peak usage hours
* Can be delivered using Michigan labor and materials
* Lack of competitive bidding

Storage

* Ludington Pumped Storage
* Currently being refurbished to increase capacity and efficiency – will have capacity of more than 2000 MW
* Ludington capacity allows it to capture excess energy generated off-peak by nuclear, coal, and renewable assets and returns it to the grid in times of high-demand - enables grid balancing with high renewable penetration
* New utility scale batteries emerging

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Performance Goals

1. Capacity: Reduce peak demand by 20% within 5 years
2. Distribution: Reduce line losses by 15% within 5 years
3. Energy waste reduction: Ramp up to reducing electricity demand by 2% per year and natural gas use by 1% per year within 5 years
4. Generation: Reduce use of coal to below 25%, and increase renewable energy to over 20% within 5 years

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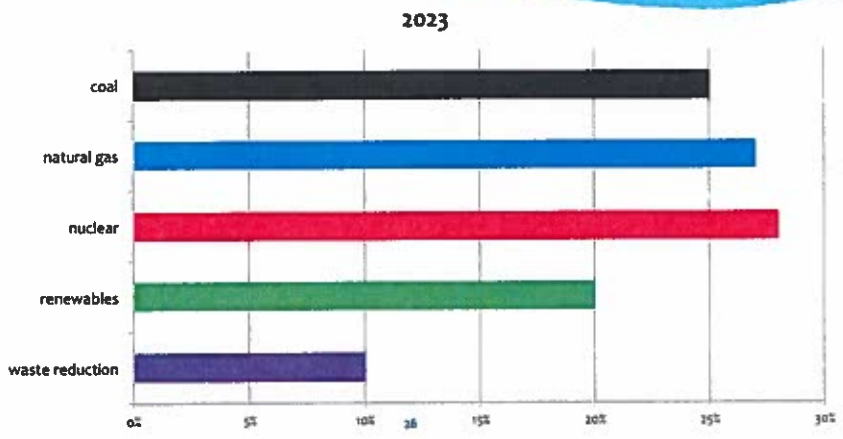
Meeting future demand



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